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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/628,837	07/28/2003	Hongliu Du	03-223	5811
719	7590	05/18/2005	EXAMINER	
CATERPILLAR INC. 100 N.E. ADAMS STREET PATENT DEPT. PEORIA, IL 616296490			JACKSON, ANDRE K	
			ART UNIT	PAPER NUMBER
			2856	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	Examiner	Art Unit
	10/628,837 DU, HONGLIU	André K. Jackson 2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 01 March 2005.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-30 is/are pending in the application.
4a) Of the above claim(s) 19-30 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-4, 8, 13 and 14 is/are rejected.

7) Claim(s) 5-7, 9-12 and 15-18 is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claim 1-18 in the reply filed on 03/01/05 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1,4,8,13 and 14 are rejected under 35 U.S.C. 102(a) as being anticipated by Junk et al.

Regarding claim 1, Junk et al. disclose in the patent entitled "Method and apparatus for performing diagnostics in a control loop of a control valve" determining a plurality of operating parameters of the hydraulic system during operation of the hydraulic system; determining an estimated working condition value of the hydraulic system; modifying the estimated working condition value as a function of the operating parameters; and determining the operating health of the hydraulic system

as a function of the working condition value (Abstract; Column 5, line 6-23).

Regarding claim 4, Junk et al. disclose where the working condition value is indicative of an amount of leakage within at least part of the hydraulic system (Abstract).

Regarding claim 8, Junk et al. disclose where the step of determining operating parameters includes determining an operating pressure of a fluid drive member and the estimated working condition value is modified as a function of the operating pressure of the fluid drive member (Column 6, lines 6-45).

Regarding claim 13, Junk et al. disclose comparing the working condition value to one or more predetermined working condition values and determining the operating health of the hydraulic system as a function of the working condition value and the one or more predetermined working condition values (Column 6, lines 7-40).

Regarding claim 14, Junk et al. disclose determining a plurality of working condition values over a period of time; and evaluating the working condition values to detect or predict a change in the operating health of the hydraulic system (Abstract; Column 6, lines 7-40).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Junk et al. in view of Miller.

Regarding claim 2, Junk et al. do not disclose where the working condition value is indicative of an effective bulk modulus value of at least part of the hydraulic system. However, Miller discloses in the patent entitled "System and method for power pump performance monitoring and analysis" where the working condition value is indicative of an effective bulk modulus value of at least part of the hydraulic system [0013]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Junk et al. to include where the working condition value is indicative of an effective bulk modulus value of at least part of the hydraulic system. By adding this feature the apparatus would be able to determine pump suction and valve performance in the system.

Regarding claim 3, Junk et al. do not disclose where the working condition value is indicative of a cavitation or entrapped air condition within the hydraulic system. However, Miller discloses where the working condition value is indicative of a cavitation or entrapped air condition within the hydraulic system [0057]. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Junk et al. to include where the working condition value is indicative of a cavitation or entrapped air condition within the hydraulic system. By adding this feature the apparatus would be able to accurately determine the performance within the system since this would give a reading of the pumping chamber during suction stroke.

6. Claim 5-7,10-12 and 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to André K. Jackson whose telephone number is (571) 272-2196. The examiner can normally be reached on Mon.-Thurs. 7AM-4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-

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2208. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A.J.

May 13, 2005


HEZRON WILLIAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800